

In the Claims:

1. (Currently Amended) A method for manufacturing ~~an integrated circuit~~ comprising a trench structure having sidewalls formed in a depth under the surface of a semiconductor substrate, said method comprising:
 - providing said semiconductor substrate comprising a crystalline material with a crystal lattice with crystal faces that are more resistant to etching and with crystal faces that are less resistant to etching;
 - defining at the surface of the semiconductor substrate first areas of a rectangular surface grid having an x axes and a y axes;
 - positioning said x and y axes of the surface grid to be parallel to the crystal faces that are less resistant to etching; and
 - etching a surface opening of said trench structures in said first areas, and etching said sidewalls of said portion of the trench structures formed in a depth under said surface of said semiconductor substrate by etching said crystal faces that are less resistant to etching so as to expand said sidewalls beneath said ~~second~~ first areas of said surface grid.
2. (Previously Presented) The method of claim 21, wherein said surface opening of a trench structure opening is imaged onto the first areas of the surface of the semiconductor substrate by means of an exposure device.
3. (Previously Presented) The method of claim 2, wherein prior to imaging, a mask opening defining rectangular sides in a layout of the trench structure is oriented so that the rectangular sides are parallel with the crystal faces of the semiconductor substrate that are less resistant to etching.

4. (Previously Presented) The method of claim 21, wherein a semiconductor wafer is provided as the semiconductor substrate and a marking identifying a crystal orientation of the crystal lattice is provided at the semiconductor wafer.
5. (Original) The method of claim 4, wherein a crystal orientation identifying the orientation of the crystal faces that are less resistant to etching is identified by the marking.
6. (Original) The method of claim 5, wherein the marking is used for the orientation of a mask in an exposure device.
7. (Previously Presented) The method of claim 21, further comprising etching the trench structure opening at the surface of the semiconductor substrate with an oval cross section.
8. (Previously Presented) The method of claim 21, wherein monocrystalline silicon is provided as the material of the semiconductor substrate.
9. (Original) The method of claim 8, wherein the surface grid is oriented in accordance with a $\langle 100 \rangle$ crystal orientation of the monocrystalline silicon.
10. (Previously Presented) The method of claim 9, wherein during the etching process, the $\langle 100 \rangle$ crystal faces having a lower etching resistance are etched more rapidly than the $\langle 110 \rangle$ crystal faces that are more resistant to etching.

11. (Previously Presented) The method of claim 21, wherein upper sections of the trench structures, between the surface of the semiconductor substrate and at least one lower edge of the secondary structures, are provided with a protective layer that is resistant to the etching process that expands said sidewalls of said trench structure.

12. (Previously Presented) The method of claim 21, wherein the trench structures are functionally designed as storage capacitances.

13. (Previously Presented) The method of claim 21, wherein the secondary structures are selection transistors formed in the second areas for use with the storage capacitances of DRAM cells.

14-20. (Canceled)

21. (Previously Presented) A method for increasing a structure size of trench structures in a depth under a surface of a semiconductor substrate, said method comprising:

providing said semiconductor substrate comprising a crystalline material with a crystal lattice with crystal faces that are more resistant to etching and with crystal faces that are less resistant to etching;

defining first areas for forming said trench structures in a checker-board fashion in a rectangular surface grid having an x axes and a y axes, at a surface of the semiconductor substrate, said first areas alternating with second areas for forming secondary structures in a section of the semiconductor substrate that is near a surface thereof;

positing said x axes and said y axes of the surface grid to be parallel to the crystal faces that are less resistant to etching; and

performing area-selective etching to increase the structure size of the trench structures in said depth under said semiconductor substrate's surface, said structure size of said trench structures expanded along said crystal faces that are less resistant to etching beneath said second areas for forming said secondary structures by said area selective etching.

22. (Previously Presented) The method of claim 1, wherein a trench structure is imaged onto the surface of the semiconductor substrate by means of an exposure device with the x, y axes of the surface grid parallel to the crystal faces of the semiconductor substrate that are less resistant to etching.

23. (Previously Presented) The method of claim 22, wherein prior to said imaging, a mask having rectangular mask openings in a layout of the large structure is oriented such that the sides of the rectangular mask opening are parallel with the crystal faces of the semiconductor substrate that are less resistant to etching.

24. (Previously Presented) The method of claim 1, wherein a semiconductor wafer is provided as the semiconductor substrate and a marking identifying a crystal orientation of the crystal lattice is provided at the semiconductor wafer.

25. (Previously Presented) The method of claim 24, wherein said crystal orientation represents the orientation of the crystal faces that are less resistant to etching is identified by the marking.

26. (Previously Presented) The method of claim 25, wherein said marking is used for orienting a patterned mask.

27. (Previously Presented) The method of claim 1, further comprising etching the trench structure opening at the surface of the semiconductor substrate with an oval cross section.

28. (Currently Amended) A method for manufacturing ~~an integrated circuit~~ comprising a trench structure having sidewalls formed in a depth under the surface of a semiconductor substrate, said method comprising:

providing said semiconductor substrate comprising a crystalline material with a crystal lattice with crystal faces that are more resistant to etching and with crystal faces that are less resistant to etching;

defining at the surface of the semiconductor substrate first areas of a rectangular surface grid having an x axes and a y axes, said first areas being located in checker-board fashion for forming said trench structures, said first areas alternating with second areas of said rectangular surface grid, said second areas being provided for forming secondary structures in a section of the semiconductor substrate that is near said surface thereof;

positioning said x and y axes of the surface grid to be parallel to the crystal faces that are less resistant to etching; and

etching a surface opening of said trench structures in said first areas.

29. (Previously Presented) The method of claim 28, wherein the secondary structures are selection transistors.

30. (Previously Presented) The method of claim 28, wherein a trench structure is imaged onto the surface of the semiconductor substrate by means of an exposure device with the x, y axes of the surface grid parallel to the crystal faces of the semiconductor substrate that are less resistant to etching.
31. (Previously Presented) The method of claim 30, wherein prior to said imaging, a mask having rectangular mask openings in a layout is oriented such that the sides of the rectangular mask opening are parallel with the crystal faces of the semiconductor substrate that are less resistant to etching.
32. (Previously Presented) The method of claim 28, wherein a semiconductor wafer is provided as the semiconductor substrate and a marking identifying a crystal orientation of the crystal lattice is provided at the semiconductor wafer.
33. (Previously Presented) The method of claim 32, wherein said crystal orientation represents the orientation of the crystal faces that are less resistant to etching is identified by the marking.
34. (Previously Presented) The method of claim 33, wherein said marking is used for orienting a patterned mask.
35. (Previously Presented) The method of claim 28, further comprising etching the trench structure opening at the surface of the semiconductor substrate with an oval cross section.